High Level Design Document

Introduction

This High Level Design (HLD) document outlines the architecture and core components for the **AttriView - Employee Attrition Analysis** project. The purpose of this project is to develop a Power BI dashboard that analyzes employee attrition trends using HR data, leveraging DAX for calculations and visualizing patterns with line and area charts.

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1. System Architecture Overview

Architecture Description:
AttriView is a data analytics solution built on Power BI. It ingests HR data, processes it using DAX, and presents interactive visualizations to end users.

Component	Role/Description
Data Source	Stores raw HR data (e.g., Excel, SQL Database, CSV)
Data Ingestion	Imports HR data into Power BI
Data Model	Structures and relates HR data tables within Power BI
DAX Calculations	Computes attrition rates and related metrics
Visualization Layer	Displays charts and dashboards for user analysis
User Interface	Enables user interaction and filtering within Power BI

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2. Component Interactions

Sequence Step	Interaction Description
1	Data Source is connected/imported into Power BI via Data Ingestion
2	Data Model organizes and relates imported HR data
3	DAX Calculations process data to derive attrition metrics
4	Visualization Layer renders line/area charts using DAX outputs
5	Users interact with the dashboard, applying filters and exploring visualizations

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3. Data Flow Overview

Data Flow Step	Source Component	Destination Component	Description
HR Data Import	Data Source	Data Ingestion	Raw HR data is loaded into Power BI

Data Structuring	Data Ingestion	Data Model	Data is structured and relationships set
Metric Calculation	Data Model	DAX Calculations	Attrition rates and metrics are computed
Visualization Output	DAX Calculations	Visualization Layer	Calculated metrics are visualized
User Interaction	Visualization Layer	User Interface	Users interact with and filter dashboards

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4. Technology Stack

Layer/Function	Technology/Framework
Data Storage	Excel, CSV, or SQL Database
Data Analytics & BI	Power BI Desktop/Service
Data Modeling	Power BI Data Model
Calculations	DAX (Data Analysis Expressions)
Visualization	Power BI (Line/Area Charts)
User Interface	Power BI Dashboard

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5. Scalability & Reliability

- **Scalability:** Power BI supports scaling from small datasets (Excel/CSV) to larger enterprise sources (SQL databases). For larger HR datasets, use DirectQuery or scheduled refresh.
- **Reliability:** Data refresh schedules and access controls in Power BI ensure up-to-date and secure data.
- **Security:** Leverage Power BI's role-based access and data protection features to restrict sensitive HR data access.

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